



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,408	02/24/2006	Yoshihiro Ito	0760-0350PUS1	4487
2292 7590 06/01/2010 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER				
BASS, DIRK R				
ART UNIT		PAPER NUMBER		
1797				
NOTIFICATION DATE		DELIVERY MODE		
06/01/2010		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

**Office Action Summary****Application No.**

10/551,408

**Applicant(s)**

ITO ET AL.

**Examiner**

DIRK BASS

**Art Unit**

1797

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 February 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 12-14, 23-24, 26 and 28-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-14, 23-24, 26, 28-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB06)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

Applicant's response filed February 24, 2010 is acknowledged. Claims 12, 23, 26, 29, 31 are amended and claims 2-11 and 27 are cancelled. Claims 1, 15-22, and 25 are withdrawn from consideration. Claims 12-14, 23, 24, 26, and 28-35 are pending and further considered on the merits.

#### ***Response to Amendment***

In light of the amendments, the examiner modifies the grounds of rejection set forth in the office action dated August 25, 2009.

#### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. **Claims 12-14, 23-24, 26, and 28-35** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chappa et al., USPA 2001/0014448 (Chappa) in view of Tanaka et al., US 6706260 (Tanaka).

4. Regarding claims 12-14 and 32-35, Chappa discloses a method for fixing nucleic acids on a substrate (abstract) comprising coating a substrate with a solution containing a water soluble polymer having at least two photoreactive groups such as phenyl azide (¶ 0038), said polymer being electrically neutral as a whole (see ¶ 0031-0033 and

Claims 5 and 11), and selectively irradiating said solution with light (implicitly disclosed in ¶ 0016 and examples 6 and 25).

5. Chappa does not appear to expressly disclose a polymer comprising units represented by formula I. However, Tanaka discloses copolymers comprising MPC polymer (abstract) for their advantageous properties such as biocompatibility and stability (col. 1, l. 66 – col. 2, l. 20).

6. At the time of invention, it would have been obvious to include the MPC polymer of Tanaka in the method of Chappa in order to provide a selective biocompatible and stable coating for fixing the biological components disclosed in Chappa.

7. Chappa in view of Tanaka do not appear to expressly disclose the relationship between the number of units of formula I and the number of units of formula II. However, it would have been obvious to a routineer in the art at the time the invention was made to optimize the relative number of units represented by formulas I and II, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art (MPEP 214.05, Part II, Section B).

8. Regarding claims 23-24, and 26, Chappa in view of Tanaka is relied upon in the rejection of claim 12 set forth above. Chappa further discloses a polymer backbone comprising polyvinyl macromolecules such as polymethylacrylamide-photoreactive methacrylamide copolymers (¶ 0021, 0032, 0057-0058).

9. Regarding claim 28, Chappa in view of Tanaka further discloses a method wherein said photoreactive group is an azide group (¶ 0034, 0038).

10. Regarding claim 29, Chappa in view of Tanaka do not appear to expressly disclose the relationship between the number of units of formula I and the number of units of formula II. However, it would have been obvious to a routineer in the art at the time the invention was made to optimize the relative number of units represented by formulas I and II, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art (MPEP 214.05, Part II, Section B).

11. Regarding claim 30, it is implicit that said polymer has a molecular weight of 1000 to 1,000,000 Daltons (implicitly disclosed in ¶ 0031-0033 and Claims 5 and 11).

12. Regarding claim 31, Chappa in view of Tanaka disclose that units X and Y are derived from vinyl monomers (¶ 0032, 0057).

***Response to Arguments***

13. Applicant's arguments with respect to claims 12 and 27 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DIRK BASS whose telephone number is (571) 270-7370. The examiner can normally be reached on Mon - Fri (9am-4pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571) 272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Krishnan S Menon/  
Primary Examiner, Art Unit 1797

/DRB/  
Dirk R. Bass